CLAIMS

WHAT IS CLAIMED IS:

1. An expandable intraluminal stent, comprising:

a plurality of rings aligned along a common axis to form a tubular shape;

wherein each ring includes a plurality of triangular cells and each cell includes at least two V struts of different amplitudes aligned in phase and joined at opposite ends; and

a connecting element joining the plurality of rings.

2. The expandable intraluminal stent of claim 1, wherein the opposite ends of the V struts coincide at enlarged areas.

3. The expandable intraluminal stent of claim 1, wherein the V struts include curved struts.

4. The expandable intraluminal stent of claim 1, wherein each V strut further comprises an included angle having a radius.

5. The expandable intraluminal stent of claim 1, wherein at least one of the vertices of a triangular cell includes a radius.

6. The expandable intraluminal stent of claim 1, wherein the connecting element includes a longitudinal component generally parallel to the common axis.

7. The expandable intraluminal stent of claim 1, wherein the stent includes a plurality of connecting elements aligned in phase between rings.

8. The expandable intraluminal stent of claim 1, wherein the stent includes a plurality of connecting elements aligned out of phase between rings.

9. The expandable intraluminal stent of claim 1, wherein each triangular cell is joined to an adjacent triangular cell at a common V strut end.

10. An expandable intraluminal stent, comprising:

a plurality of rings aligned along a common axis to form a tubular shape;

wherein each ring includes a plurality of triangular cells;

wherein each triangular cell is formed from at least two V struts of differing amplitudes having respective large angle vertices that are aligned in phase with opposite ends joined to form small angle vertices;

wherein the triangular cells are joined together to form the ring at the small angle vertices; and

a connecting element joining the plurality of rings.

11. The expandable intraluminal stent of claim 10, wherein the connecting element coincides with at least one of the small angle vertices.

12. The expandable intraluminal stent of claim 10, wherein the stent includes a superelastic metallic alloy and is self-expanding.

13. The expandable intraluminal stent of claim 10, wherein the stent includes a low elasticity metal and the stent is balloon expandable.

14. The expandable intraluminal stent of claim 10, wherein at least one of the vertices of the triangular cell is curved.

15. The expandable intraluminal stent of claim 10, wherein at least one of the joined small angle vertices includes a radius.

16. The expandable intraluminal stent of claim 10, wherein the stent includes a plurality of parallel longitudinal connecting elements extending through the joined small angle vertices.

17. The expandable intraluminal stent of claim 16, wherein the longitudinal connecting elements are separated by at least two triangular cells.

18. The expandable intraluminal stent of claim 10, wherein the triangular cells in one ring is staggered from the triangular cells in an adjacent ring.

19. The expandable intraluminal stent of claim 10, wherein the V struts have curved segments.

20. A method for providing an expandable intraluminal stent, comprising:

providing at least two V struts having respective large angle vertices;

aligning the V struts in phase and joining the opposite ends to form small angle vertices to form a triangular cell;

joining the triangular cells at the respective small angle vertices to form a ring;

aligning a plurality of rings aligned along a common axis to form a tubular shape;

providing a connecting element; and

joining the connecting element to adjacent rings.

21. The method for providing an expandable intraluminal stent of claim 20, wherein the connecting element coincides with at least one of the small angle vertices.

22. The method for providing an expandable intraluminal stent of claim 20, wherein the stent includes a superelastic metallic alloy and is self-expanding.

23. The method for providing an expandable intraluminal stent of claim 20, wherein the stent includes a low elasticity metal so that the stent is balloon expandable.

24. The method for providing an expandable intraluminal stent of claim 20, wherein the method includes providing a radius at each vertex of the triangular cell.

25. The method for providing an expandable intraluminal stent of claim 20, wherein the method includes providing increased mass at the vertices where the triangular cells are joined.

26. The method for providing an expandable intraluminal stent of claim 20, wherein the connecting element includes a longitudinal dimension.

27. The method for providing an expandable intraluminal stent of claim 20, wherein the method includes staggering the triangular cells in one ring from the triangular cells in an adjacent ring.

28. An expandable intraluminal stent, comprising:

a plurality of rings aligned along a common axis to form a tubular shape;

wherein each ring includes a plurality of triangular cells;

wherein each triangular cell is formed from at least two V struts, each V strut having an amplitude different from an amplitude of another V strut, an included angle vertex, and extending arm segments with opposite ends, and wherein the V struts are aligned in phase;

means for joining the opposite ends of the V struts to form the triangular cell; and

means for connecting the plurality of rings.

29. The expandable stent of claim 28, wherein the means for joining the opposite ends of the V struts includes means for reducing stress concentrations.

30. The expandable stent of claim 28, wherein means for connecting the plurality of rings includes means for improving flexibility of the stent.

31. An expandable intraluminal stent, comprising:

a plurality of rings aligned along a common axis to form a tubular shape;

wherein each ring includes a plurality of triangular cells;

wherein each triangular cell is formed from at least two V struts of differing amplitudes having respective large angle vertices that are aligned in phase with opposite ends joined to form small angle vertices;

wherein the triangular cells are joined together at the small angle vertices in a series of peaks and valleys to form the ring; and

a connecting element joining the plurality of rings.

32. The expandable intraluminal stent of claim 31, wherein at least one of the connecting elements extends from a small angle vertex of a triangular cell of a ring to a small angle vertex of a triangular cell of an adjacent ring.

33. The expandable intraluminal stent of claim 31, wherein at least one of the connecting elements extends from a peak of a ring to a peak of an adjacent ring.

34. The expandable intraluminal stent of claim 31, wherein at least one of the small angle vertices includes increased mass.

35. The expandable intraluminal stent of claim 31, wherein at least one of the large angle vertices includes increased mass.

36. The expandable intraluminal stent of claim 31, wherein at least one of the large angle vertices includes a radius.